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ON

SCHOOL-MUSEUMS

BY

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OF THE REGISTRAR OF BOOKS
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SCHOOL MUSEUMS.

A school museum is an adjunct to school work and ought not to be a miscellaneous assortment of odds and ends, cheap curios, brass gods made in San Fransisco, cheap cutlery made in Germany, Kondapalli toys and well-dressed ladies and gentlemen in chinaware. Very often a museum is started on the impulse of the moment to please an educational mandarin who is expected to visit the school, and boys are asked each to contribute some article to the projected museum ; the result is that it soon glories in the possession of things of bewildering variety, and is not the expression of any ideas of school teaching. The expected visit takes place, the Headmaster is complimented, on being exceptionally intelligent and up-to-date and the articles are consigned to an obscure corner of the school house, there to be buried in dust till they are wanted again, years later, to help to make another "brave show."

In this country, school museums have a very definite function to discharge. For ages, education in India has been a process of memorizing and of interpretation of texts. When English schools were started, the same process was applied to English literature. Students began to recite Shakespeare with as much gusto as they used to recite Kalidasa ; teachers, to expound the text of Milton with as keen appreciation of the subtleties of textual exposition as the old world pundits did in the case of Valmiki. Hence English education has proved to be as futile as Sanskrit education. The idea that the object of education is to train children to use their eyes and ears, their hands and their

fingers, never appealed to the organizers of education in this country. The truth that the brain does not grow by memorizing but by the use of hands, just as in the history of the race the human brain evolved only in proportion to the play of the hand rendered possible by the assumption of the erect posture by early pithecoid man, never dawned on the minds of the teachers of the earlier generations. Ignorance of child-psychology also led to the attempt to train children below the age of fifteen to argue about abstractions, and this was supposed to be intelligent teaching in that it was not "cram"! but even excessive memory work is not so harmful to the child brain as premature argumentation about abstract ideas, or rather, the words that do duty for them. School museums are one means of remedying this evil.

The starting and management of school museums presuppose that boys should be encouraged to go on expeditions for collecting rocks, plants, birds, nests, eggs, etc. English school boys take readily to this form of amusement as it is called, but education it really is, and they often introduce into their dormitories their pet animals on the sly even at the risk of having to copy out hundreds of lines of poetry; but in this country a "good boy" is expected by his parents and by his school-masters to be always at his desk, learning by rote endless lines of moral poetry, enough to drive a saint into the paths of mischief for self-protection against this inhuman grind, or composing essays with no ideas in his brain and with a liberal supply of scissors and paste. But I find that even Indian boys take to nature-study, to the rearing of animals and the raising of plants, to the observation of their characteristics and to the recording of these

observations in diaries when encouraged by their teachers; for three thousand years of metaphysics and of concentration of the eyes on the tip of the nose, has not yet destroyed their human nature, human interests and human faculties.

A school museum ought to be designed by the Head or other master who possesses the necessary enthusiasm, and furnished with specimens collecte mainly by the boys themselves. Without being a comple guide to the geology, mineralogy, botany and zoology the district where it is situated, it should afford means wherewith the students of the school ld intelligently study the most elementary facts o ant and animal life and the physical facts within the each of the school. The teacher when organising the seum ought to make a plan of what things illustratir these ought to be secured, and encourage the boys collect objects under his supervision and guidance. nce many of the objects would represent living natu it follows that a portion of the contents of the musem would be of a temporary character—generations plants and animals, flowers and fruits which may perish and be renewed any number of times; for a scloa museum need not be what the Madras Government central museum is called by the common people—the college of corpses."

Besides collecting specimes, the boys should be encouraged to keep diaries where they should note daily their observations of the life history of the plants or animals in their charge; each one must periodically weigh and measure is specimens, note the manner of growth day after day, interesting facts in

their habits and so on. It goes without saying that each boy must daily feed his own plants and animals. He may even be encouraged to make simple dissections of plants and animals, or assist at their dissection or, at least, prepare skeletons of animals and leaves and sections of stems of trees and herbaria and make collections of eggs for permanent preservation in the museum. They can also assist in preparing apparatus for illustrating geographical lessons, *e.g.*, relief maps and globes of clay or papier-mache, apparatus to show the formation of rain, the formation of sediments, models of artesian wells, volcanoes, the subsoil flow of water, water falls and rapids, atolls, etc.

I am of opinion that the grade of teaching below the fourth form of a secondary school should not be conceived as a pendant of the University course and the lower classes as far-off echoes of the matriculation class. Education ought to have a better, saner object in view than leading to the noble end of being slaughtered by the ruthless matriculation examiner. It should be conceived so that geography, that most interesting and most human subject, may be the central subject and other subjects, history, nature study, drawing, elementary mathematics and language study, may be correlated to it. The school museum, then, should first aim at being an auxiliary to geographical studies. The various kinds of rocks from sand and clay up to granite and quartz, so far as they can be picked during holiday rambles should be the starting point of school museums. Clay models of hills and dales with river courses and lakes, watersheds and water partings, and of seas, gulfs and other divisions of water, as well as relief maps can be made by boys and can find a place in the school museum. Clay-

modelling has this advantage that, when the clay dries it cracks and the models become useless, thus compelling the work to be done again and again every term. A good material for this work, if intended for permanent preservation after being done accurately to scale, is paper soaked in water and ground with fenugreek. Glass troughs filled with pebbles, clay, sand, etc., can be made to illustrate the stratification of the crust of the earth, as also the less visible effects of rain like percolation, subsoil flow, sources of watersupply to wells and artesian wells. The formation of rain ought to be illustrated by apparatus made of tin and sheet-glass and worked by boys. Models of coal mines, made of clay and imbedded in glass troughs and specimens of iron, lead and other cheap metals in various stages of manufacture will form a useful adjunct to the teaching of industries. Specimens of cereals, cotton and wool in various stages of manufacture, silk from the cocoon to the silk cloth, can be easily obtained ; and these, supplemented by object lesson pictures of manufactures so easily obtainable from many publishers, will make this portion of geography teaching rational and pleasant.

Philately is especially a school-boy's hobby and can also be pressed into service to render the geography lesson less distasteful to children than at present ; and if the collection of stamps of any particular boy is not specially costly, he may leave it behind him as a memento of his connection with his school.

Related to the study of geography is nature study. The animal and vegetable products of the divisions of land and sea cannot be taught unless the student has some knowledge of the main principles of classification

of the world's animal and vegetable population; and lessons on their geographical distribution presuppose a knowledge of the fundamental facts of their life history; moreover nature-study is in itself of absorbing interest to the child-mind and helps the brain to develop. For this purpose each boy must be given charge of a plant and an animal. He must grow the former from the seed and observe all its changes day after day and record it in his notebook. The main facts that ought to be illustrated in this department of the school museum are the parts of a seed, and single and double cotyledons (seed-leaves) and consequent dichotomy of plants, the functions of the seed, seedlings, the root and its functions, methods of propagation other than by roots, the structure and functions of stems, the processes of grafting and budding, wounds on the stems and their healing, the leaves and their functions in the economy of plants, flowers, and fruits, their parts and their uses to the plants, the characteristics of flowerless plants, the nature of soil, the feeding of plants, the relations between insect life and plant life, both beneficent and maleficent, and finally the dispersal of plants. Representatives of the more important classes of plants, not omitting the cactus, to illustrate the evolution of the leaf into a thorn for protection against animal depredators ought to be grown. Schools ought to have besides some living specimens of sea and fresh water plants grown in bottles. The bottles containing aquatic plants may contain aquatic animals also, and if suitable plants and animals are chosen, the necessity for renewing the water frequently will be minimized. Models of English fruits and pictures of English flowers and leaves should be added to this department of the museum; they will be useful also in English lessons.

Specimens of the main divisions of animals available in the district where the school is situated ought to find a place in the museum. Most schools are unlikely to possess a compound microscope ; hence cultures of animalcules are out of the question. Worms can always be dug out of flower-pots and do not require special care.: but insect life ought to be amply illustrated. The different stages of the life-history of butterflies, moths and flies ought to be always available for observation ; besides, students should be encouraged to collect specimens of various species and present their collections to their school museums. Beehives and bottles of ants and other insects and spiders in webs, can be provided without any difficulty. Tadpoles and frogs can be kept in an earthern water-cistern. Glass jars or bell-glasses can be improvised into aquaria for fishes. Terraria can be fitted up with small boxes and the life histories of frogs, toads and lizards as also of insects be illustrated. Two or three of harmless snakes will at least cure the Hindu boy of his superstitious dread of everything in the form of a snake. Live shells can be collected everywhere in plenty and this is an occupation of absorbing interest to children.

A few birds and a full collection of eggs and birds' nests will always delight childern. Rats, cats, dogs, rabbits and monkeys may represent the higher animals. The bigger wild animals can be represented only by pictures and the bigger tame ones by skeletons so far as they illustrate some fundamental principle of the classification of animals or some point fit to bring out the powers of observation of the pupils.

The Drawing lesson ought to be correlated to nature-study. Drawing has been a compulsory subject

in our schools for many years but has made absolutely no headway. Drawing masters begin their drawing lessons with the stra'ght line—that one thing which is least inspiring to contemplate, which exists nowhere in nature and which no man can draw accurately without mechanical aids. The drawing of straight lines and copying of outlines of simple objects set on the black-board, are the staple products of a drawing master's brain, and after years of such school work, boys are exactly where they began.

Instead of this, boys shculd be introduced straight to objects and made to draw objects just as they see them. After all, the first object of a drawing lesson is to teach boys to see ; each boy must be set to draw the plants and animals he studies. Mass drawing, brush work and light and shade may be introduced from the earliest stages, and perspective as soon as the least steadiness in drawing outlines is attained. Some boys have a natural aptitude for drawing and their work ought to be preserved in the school museum and will be a source of pride to the school.

It is recognised by all teachers that map drawing is an auxiliary to geography teaching; but ordinarily it is not correlated to geography teaching, except that during holidays boys are asked to copy from the atlases the maps of the countries which they study during the week. I think that maps ought to be drawn in class during every geography and history lesson and boys should follow the class teaching by marking on these maps whatever they are taught in the particular lesson. The maps for this purpose should be invariably coloured, orographical maps; for geographical and

historical facts acquire a meaning only when correlated to the conditions revealed by the physical features of a country or province. To make this possible, boys should be trained very early in their school career to draw maps with facility; and this can be attained if elementary mathematics were correlated in the lowest classes with geography. Drawing on squared paper, measurement of lines, representation of length and direction by straight lines, drawing of circles and measurement of angles, drawing easy plans to scale, ought to be combined with the earliest lessons on the "simple rules" and geographical representation of facts and contour maps ought to follow soon. (Vide *Longman's Practical Arithmetic and Gibbon's manual for teachers of elementary Geography.*) Such a treatment will enable map-drawing to be introduced early in the course and this would secure for children the necessary facility to follow Geography and History lessons as indicated above with their maps. Model maps of all kinds selected from the work of boys done along these lines can be used for enriching the museum, for adorning its walls and for encouraging later generations of school-boys. History teaching will afford opportunities for the encouragement of collecting coins and old-fashioned implements of war-fare and making copies of inscriptions available near the school, which will be a valuable acquisition to the museum. Ballads sung by the people regarding stirring events of local history, *e.g.*, Bobbili ballads, Gingi ballads might be copied to dictation from wandering bards not yet extinct and can also be preserved. Pith models of historic forts and famous temples will give a meaning to proper names which they do not now possess.